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ABSTRACT

Procedures used during a 5-week assessment phase of a simultaneous communication program for five severely dysfunctional nonverbal children (5-9 years old) are described, and techniques for assessing autistic children are discussed. Indications from measuring the gestural communication of 5 dysfunctional Ss following communication training include that there was considerable variability among Ss' level of communication; that spontaneous communication lagged behind both receptive and reproductive communication; and that gestural communications involving verbs of action and nouns were the easiest to teach. A study involving eight autistic, eight normal, and eight retarded children is cited as an attempt to assess the children's ability to distinguish basic elements of human speech. Other assessment techniques are mentioned which involve the use of fading procedures, visual and then auditory stimulation, and microanalysis of body movement. (SB)

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Assessing Autistic Children: Discrimination Training and Simultaneous Communication Procedures [1]

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Substudy 75-11 [2]

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ASSESSING AUTISTIC CHILDREN: DISCRIMINATION TRAINING AND SIMULTANEOUS COMMUNICATION PROCEDURES

In 1973 Lovaas et al published their long - awaited follow-up study of twenty children treated intensively with speech - oriented operant-conditioning procedures. In general, the results were not particularly encouraging. True, all children benefitted from the programme in some way, but few if any developed normal personality patterns. Speech where it emerged at all, seems not to have had the qualities usually associated with this form of communication. Our own follow up study of 5x autistic and psychotic children treated with operant procedures, (Mack, 1974) thoʻgh admittedly not as tightly controlled as the study of Lovaas et al (1973), yielded an essentially similar outcome.

The studies of Mack (197.) and Lovaas et al (1973), like all follow-up studies conducted to date, were seriously handicapped by lack of appropriate assessment instruments. Social competency scales, intelligence tests and psycholinguistic batteries do not "reach low enough" and they fail to pinpoint specific deficits. If as Lovaas et al (1973) and Mack (1974) would claim, these severely disturbed

non-verbal children are markedly different from one another in terms of the type and extent of perceptual or cognitive disability, it is to be expected that some children will fare better than others in a particular given programme. Until very recently there was within the tradition of radical behaviourism, little alternative to the Lovaas-type programme. Yet with the presentation of Creedon's work at this meeting two years ago (Creedon, 1973), a new alternative was opened up.

Creedon's research centres on the use of American sign language accompanied by the equivalent spoken English. Her films demonstrate that many autistic children come to sign very effectively and that some come to mouth words or speak as they sign. Similar encouraging reports have been made by Miller and Miller (1973) and Webster et al, (1973). Yet it would appear that simultaneous communication procedures do not benefit all children. For example, Konstantareas and Webster (1974) noted that one of five children showed little or no progress over five weeks in such a programme. The present paper will suggest that one way to determine a particular autistic child's suitability for a simultaneous-communication programme is simply to "try it and see". Accordingly, in the first part of this paper we shall describe briefly the procedures used during a five-week

assessment phase of a simultaneous communication programme. The second part of the paper will also be concerned with assessment techniques but in this case with more formal experimentation. In a first study, five severely dysfunctional boys ranging in age from 5 years 3 months to 9 years 4 months with a mean age of 7 years 5 months participated in the programme. The programme's aims were twofold:

(a) to instate communication relying on simultaneous communication procedures

(b) to improve performance in various areas of functioning such as social interaction, self-care skills and awareness of the environment while reducing negative behaviours like self-stimulation, negativism etc.

Here we shall report mainly on the first objective. Simultaneous communication training followed a four-step sequence involving successive approximations to the required responses. Following the tradition of research on speech development with normal children, we divided gestural communication (the only communication that could be measured reliably with our population) into three categories: receptive, reproductive, and spontaneous. Our results suggested that:

(a) there was considerable variability among subjects as to the level of communication achieved, a factor that can be tentatively attributed to the child's initial level of functioning.

(b) spontaneous communication lagged behind both receptive and reproductive (imitative) - a result which has also been reported for verbalization (McNeil, 1966).

(c) no asymptote was reached at the end of training a result that suggested that there was room for further improvement in the future.

(d) there was some indication of improvement in speech as a result of exposure to simultaneous communication for the non-mute subjects, and

(e) when analyzed by parts of speech, the gestural communications involving verbs of action and nouns were the easiest to teach.

In addition to these particular results we may add that we found improvement in the children's awareness of their environment, their smiling, sharing, interaction, particularly with adults, etc. and some decrease in negative behaviour. Of particular importance was the considerable rapport this method afforded between child and therapist. Frequently we "tuned in" with each other and could obtain a great deal of satisfaction from the interaction (cf. Tinbergen, 1974). At times it was difficult for a naive observer to detect that he was observing severely dysfunctional children in treatment.

Two of the children mentioned above are currently part of a group of 5 who are being exposed to a more systematic and intensive winter programme which places considerable emphasis on parental participation aimed at producing generalization of effects across settings.

...5

As indicated in these graphs two of which refer to these same children (Figures 1 and 2) the children were able to expand on their summer gains.

.....

Insert Figures 1 to 4 about here

.....

Note that although in the summer programme a sign could be identified along more than one category, in our winter programme this was not the case. No data are presented for our fifth child as she is as yet too new to the programme. In our current programme we are focusing on a number of additional areas such as the control of self-stimulatory behaviours, using overcorrection procedures, the promoting of social interaction and the acceleration of academic skills, among other things.

The second part of our work has concentrated on assessment techniques. There seems little point in placing a child on a Lovaas-type programme of imitative speech unless it is demonstrated that the child can distinguish basic elements of human speech. Work by Lovaas et al. (1971) has in fact shown that one can be greatly misled as to whether the child is in fact controlled by auditory cues. In their paper Lovaas et al. describe the case of a child whose ability to imitate sounds was eliminated once the therapist covered her face with her hand (i.e. the child relied exclusively on the visual component of the communication).

As a first attempt at clarifying this issue we subjected eight autistic, eight retarded and eight normal children to an auditory discrimination procedure requiring the child to press a button in the presence of one phoneme, (eg. "o") and to withhold pressing in the presence of the other, (eg. "e"). Analysis of variance showed that the normal group was reliably superior to the other two groups, with the autistic children being particularly impaired.

.....

Insert Figure 5 about here

.....

We followed this experiment up with a better experimental design involving a very gradual increase in the duration and intensity of the negative stimulus while presenting the positive at its full value. Three groups of children, autistic, retarded and younger normals, participated. Unfortunately, we were unable to obtain successful performance with this fading procedure for any of our autistic children. It is not clear at this point whether the deficit lies in the children or in the apparatus and design employed. In a third venture along this same line we followed a somewhat different procedure comparable to that employed by Meyerson and Michael (1964) involving the use of visual first and then auditory stimulation. The results are suggestive although

not sufficiently clear to allow us to assess reliably the children's ability to discriminate speech sounds prior to subjecting them to a speech type programme. An errorless procedure using visual fading has also been used earlier in our laboratory (Sherman & Webster, 1974) but we still need additional work before we can rely on these assessment techniques.

A seemingly promising assessment approach we are currently involved in attempts to extend, using a different technique, the work of Condon (1975). Employing microkinesis techniques, i.e. the microanalysis of body movement by various body parts (self synchrony) and in interaction with someone else (interactional synchrony), Condon claims to have obtained evidence suggesting that dysfunctional children respond differently to external stimulation as compared to normals, as early as the first day of life, if not earlier. The dysfunctional child responds to auditory stimulation not only once as the normal but at least two times: immediately and with a delay which in the most severe cases can reach 1 full second.

An attempt has been made to portray the "Condon" effect in Figure 6

.....

Insert Figure 6 about here

.....

which shows how a "dysfunctional Child" might make a response to sound (upper trace) where it occurs and a second response after a fraction of a second. The data are hypothetical. Condon's procedure involves normal movie speeds and then analysis of small sections of material through a time motion analyzer. In our approach we employ high speed photography involving the exposure of approximately 400 frames/second, (hence the time at the top of Figure 6, which is based on playback at regular speed). We are now attempting to compare normal and severely dysfunctional children in terms of their responding to various auditory and auditory-visual stimuli. If successful, our results will replicate Condon's findings and would clearly have important implications for the assessment not only of autistic but also of other less severely impaired children.

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FIG. 1

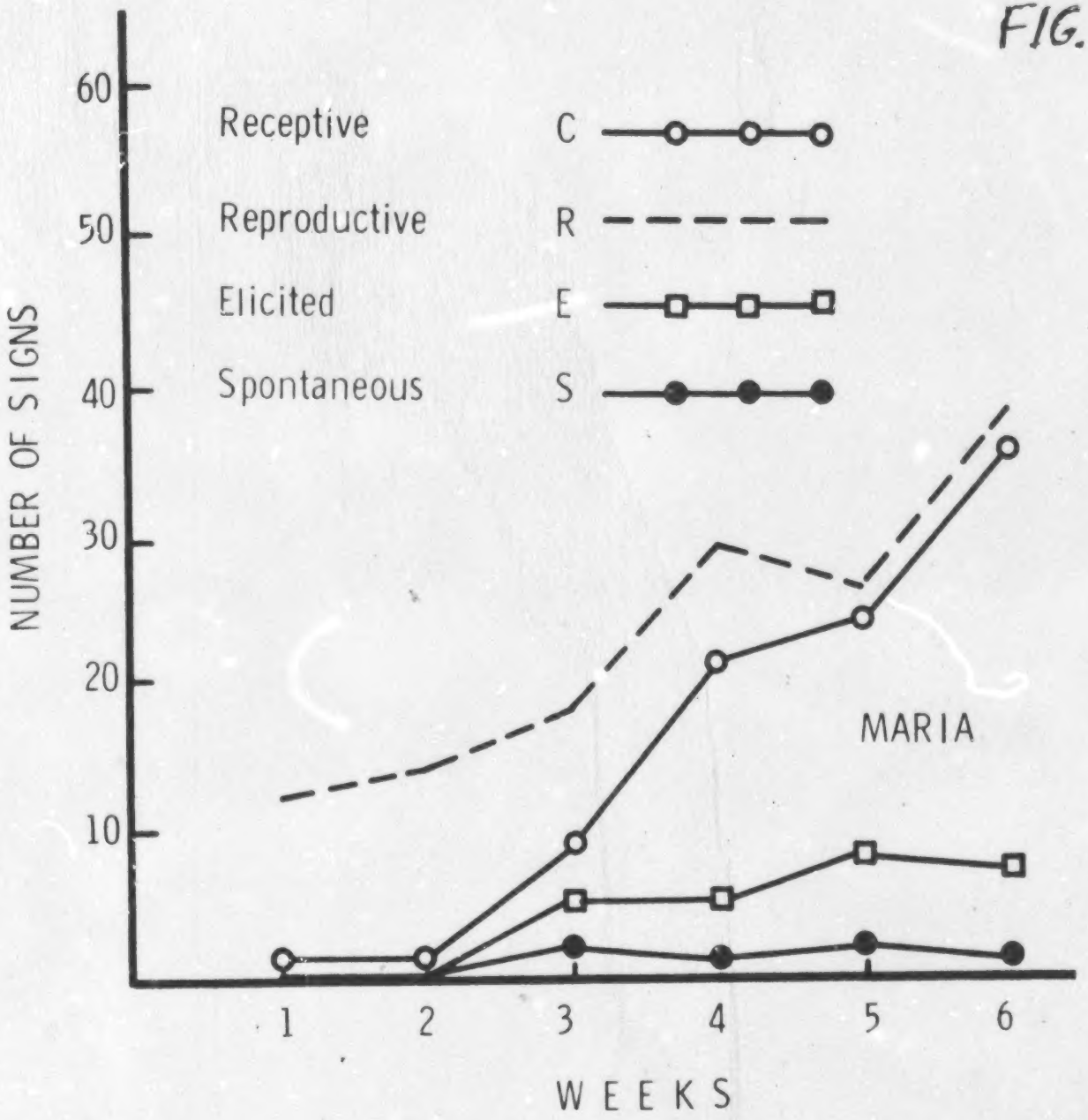

60
50
40
30
20
10
NUMBER OF SIGNS
Receptive C
Reproductive R
Elicited E
Spontaneous S
MARIA
1
2
3
4
5
6
WEEKS

FIG. 2

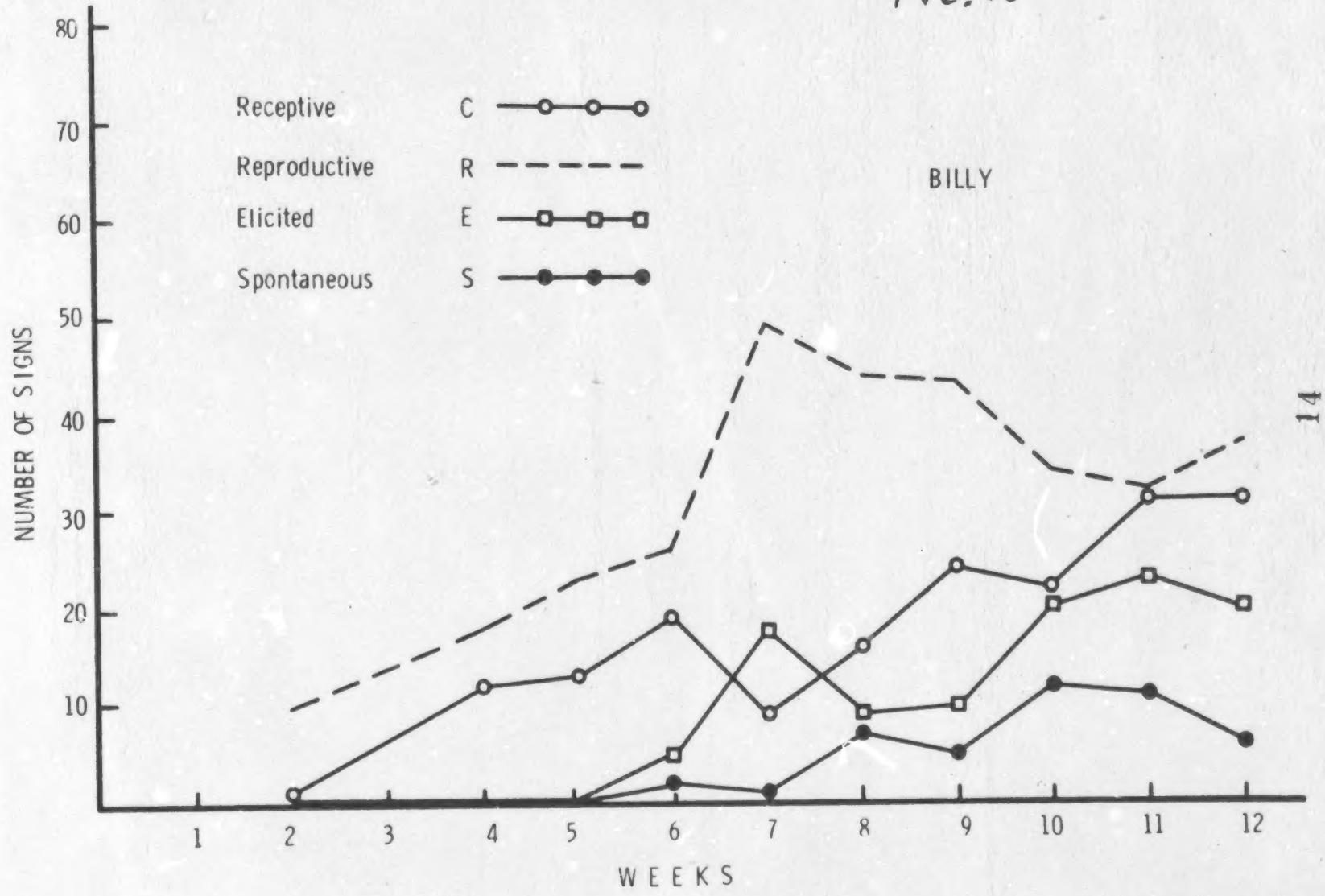
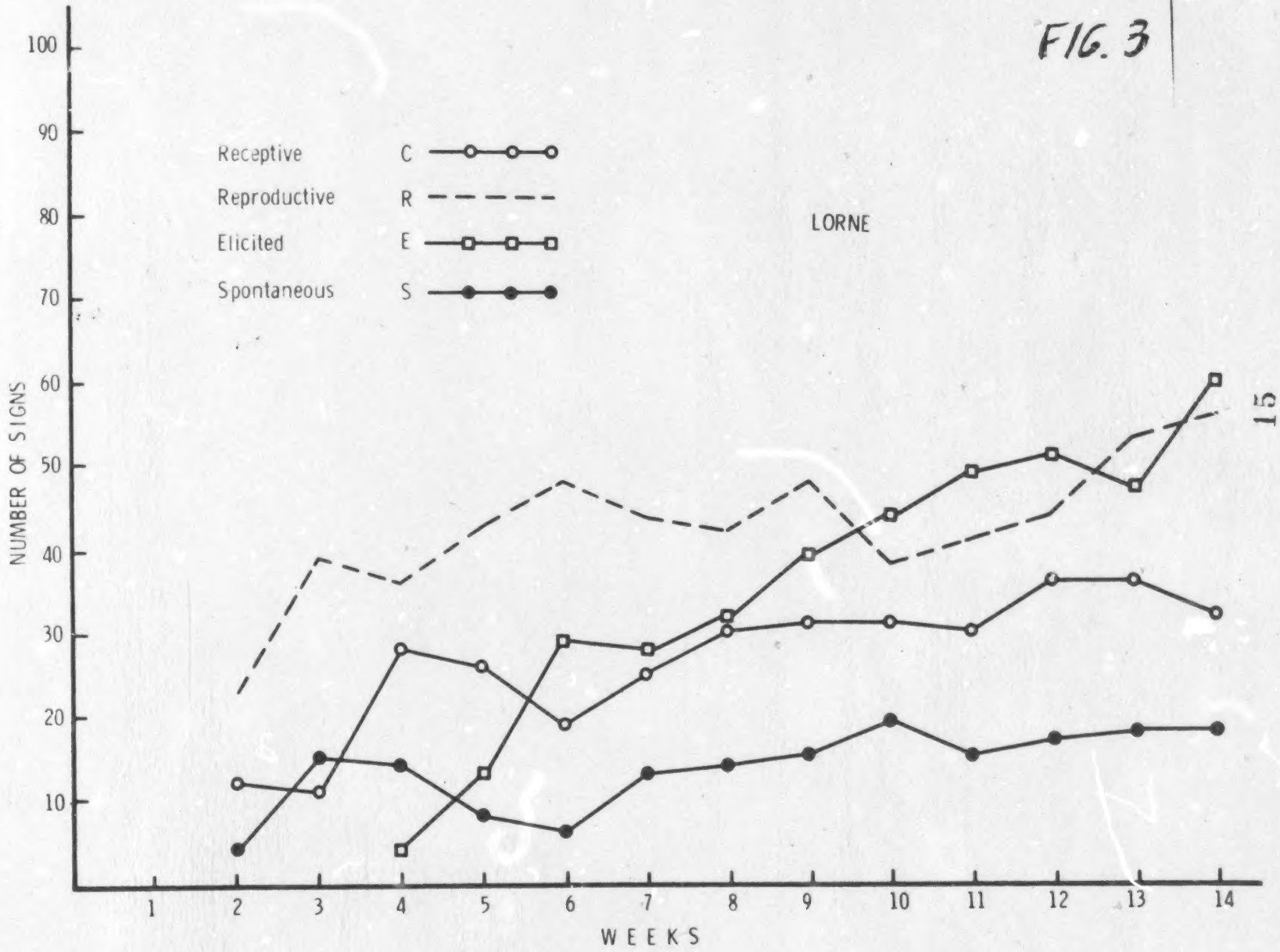
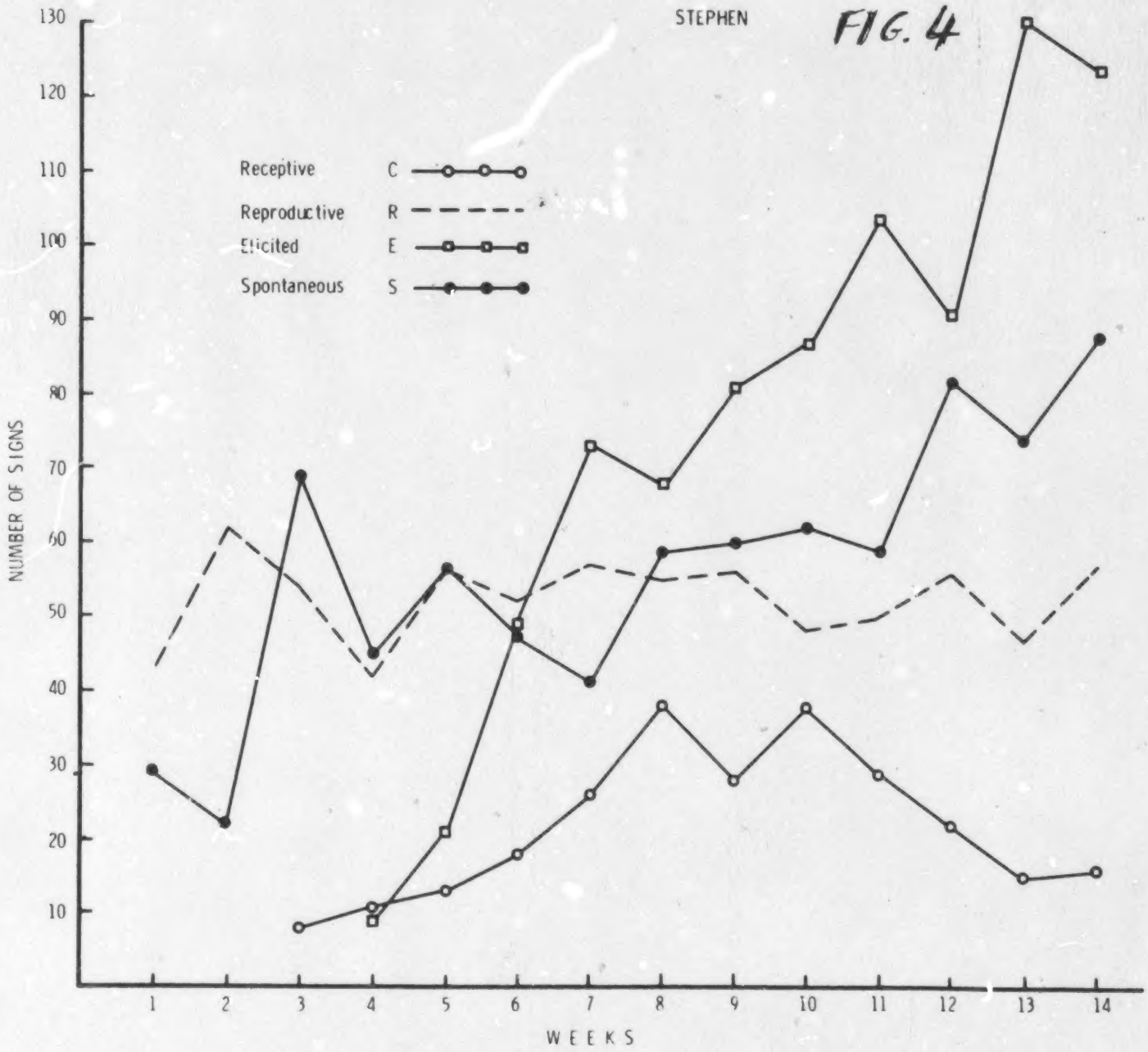
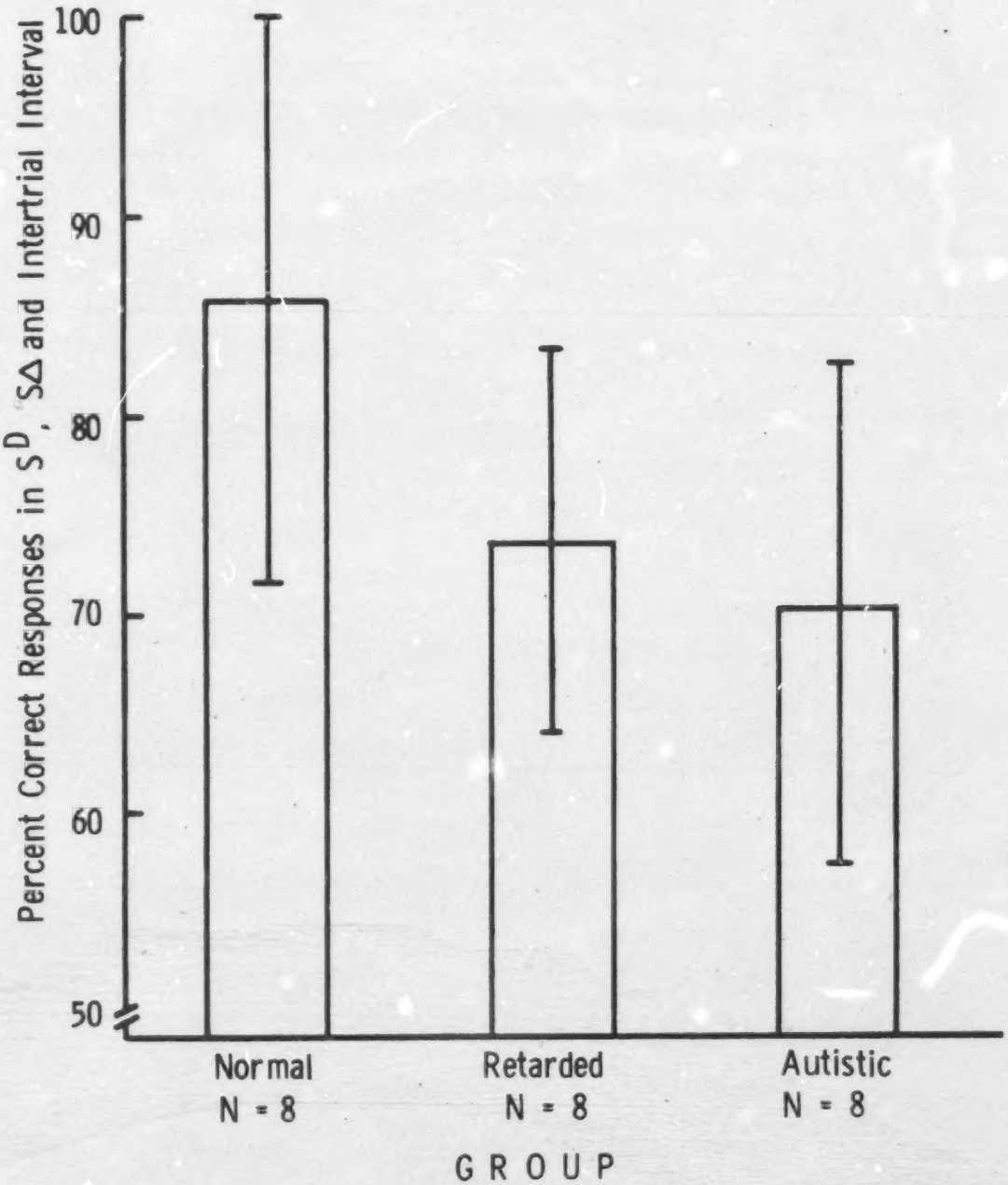

Receptive C
Reproductive R
Elicited E
Spontaneous S
BILLY
NUMBER OF SIGNS
80
70
60
50
40
30
20
10
1
2
3
4
5
6
7
8
9
10
11
12
WEEKS

FIG. 3


Receptive C
Reproductive R
Elicited E
Spontaneous S
LORNE
NUMBER OF SIGNS
100
90
80
70
60
50
40
30
20
10
1
2
3
4
5
6
7
8
9
10
11
12
13
14
WEEKS


STEPHEN
FIG. 4
Receptive C
Reproductive R
Elicited E
Spontaneous S
NUMBER OF SIGNS
130
120
110
100
90
80
70
60
50
40
30
20
10
1 2 3 4 5 6 7 8 9 10 11 12 13 14
WEEKS



Mean per cent of correct responses in S^D, S^Δ and the intertrial interval by normal, retarded and autistic children. (LI's EXPERIMENT)

FIGURE 5

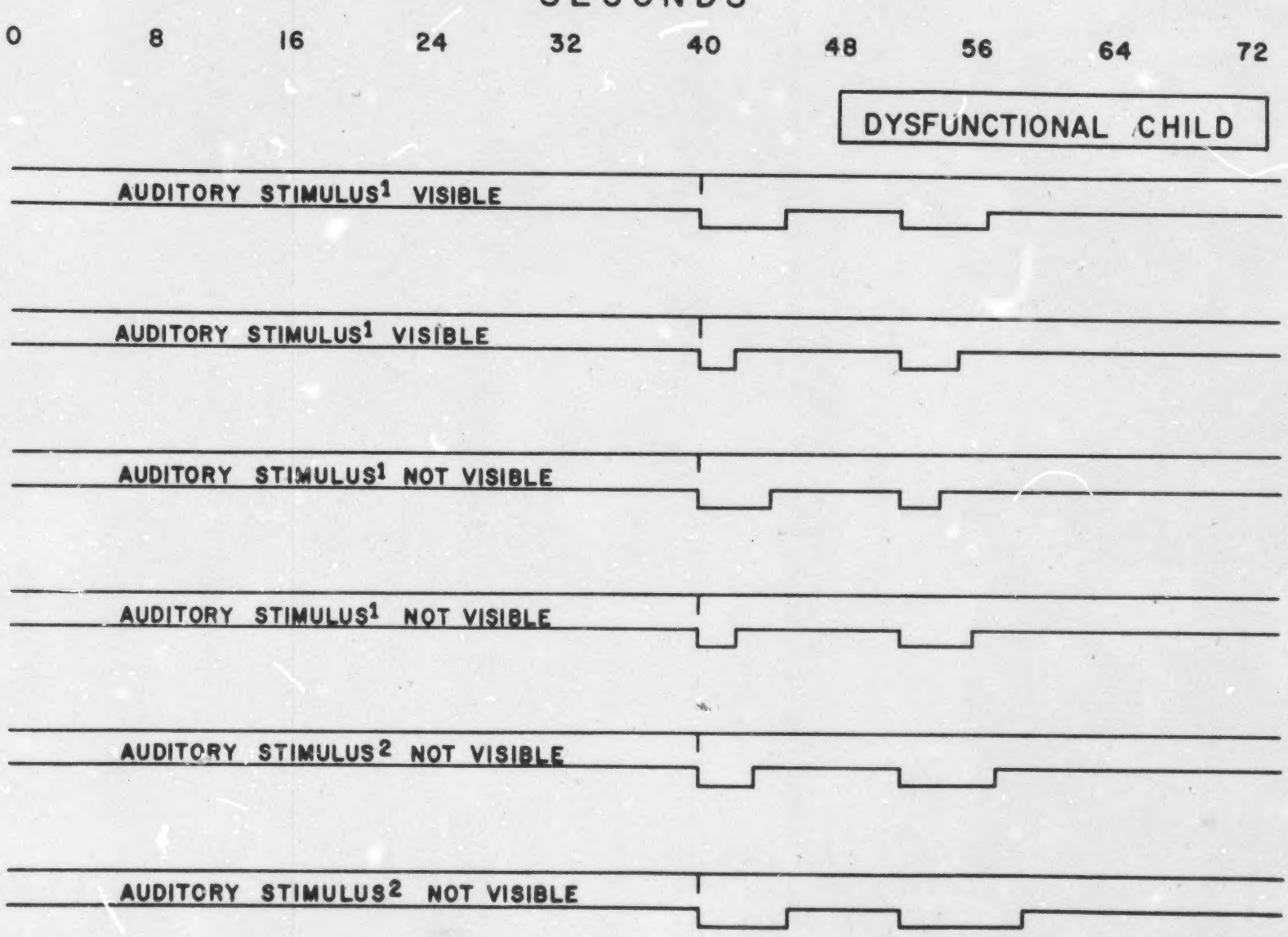

SECONDS
0
8
16
24
32
40
48
56
64
72
DYSFUNCTIONAL CHILD
AUDITORY STIMULUS1 VISIBLE
AUDITORY STIMULUS1 VISIBLE
AUDITORY STIMULUS1 NOT VISIBLE
AUDITORY STIMULUS1 NOT VISIBLE
AUDITORY STIMULUS2 NOT VISIBLE
AUDITORY STIMULUS2 NOT VISIBLE

FIGURE 6